



-1-

SEQUENCE LISTING

<110> Thomas, Stephen G
Hedden, Peter
Phillips, Andrew L

<120> Gibberellin 2-Oxidase

<130> 0623.0970000

<140> To Be Assigned
<141> Herewith

<150> PCT/GB99/01857
<151> 1999-06-11

<150> GB 9812821.8
<151> 1998-06-12

<150> GB 9815404.0
<151> 1998-07-15

<160> 16

<170> PatentIn Ver. 2.1

<210> 1
<211> 1318
<212> DNA
<213> Phaseolus coccineus

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caagtccacg cccttgttca cggggattcc tgggtcgac ctcacgcacc ccgatgcca 180
gaatctcata gtgaacgcct gtgggactt cgcttcttc aagcttgtga accatgggt 240
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cccaaacggt gatgtcggtt gggtcgaata cctccttcctc aacacaacc ctgtatgttat 420
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gaactacatt acaggcgtga agaacatgtg ctatgcggtg ttggaaattga tggcggagg 540
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gtgccttcagg ttgaaccact acccgcccttgc ccctcgagggtg caagcaactga accggaattt 660
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<210> 2
<211> 331
<212> PRT
<213> Phaseolus coccineus

<400> 2

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Pro Phe Lys Ser Thr Pro Leu Phe Thr Gly Ile Pro Val Val Asp Leu
20 25 30

Thr His Pro Asp Ala Lys Asn Leu Ile Val Asn Ala Cys Arg Asp Phe
35 40 45

Gly Phe Phe Lys Leu Val Asn His Gly Val Pro Leu Glu Leu Met Ala
50 55 60

Asn Leu Glu Asn Glu Ala Leu Arg Phe Phe Lys Lys Ser Gln Ser Glu
65 70 75 80

Lys Asp Arg Ala Gly Pro Pro Asp Pro Phe Gly Tyr Gly Ser Lys Arg
85 90 95

Ile Gly Pro Asn Gly Asp Val Gly Trp Val Glu Tyr Leu Leu Asn
100 105 110

Thr Asn Pro Asp Val Ile Ser Pro Lys Ser Leu Cys Ile Phe Arg Glu
115 120 125

Asn Pro His His Phe Arg Ala Val Val Glu Asn Tyr Ile Thr Ala Val
130 135 140

Lys Asn Met Cys Tyr Ala Val Leu Glu Leu Met Ala Glu Gly Leu Gly
145 150 155 160

Ile Arg Gln Arg Asn Thr Leu Ser Arg Leu Leu Lys Asp Glu Lys Ser
165 170 175

Asp Ser Cys Phe Arg Leu Asn His Tyr Pro Pro Cys Pro Glu Val Gln
180 185 190

Ala Leu Asn Arg Asn Leu Val Gly Phe Gly Glu His Thr Asp Pro Gln
195 200 205

Ile Ile Ser Val Leu Arg Ser Asn Ser Thr Ser Gly Leu Gln Ile Cys
210 215 220

Leu Thr Asp Gly Thr Trp Val Ser Val Pro Pro Asp Gln Thr Ser Phe
225 230 235 240

Phe Ile Asn Val Gly Asp Ala Leu Gln Val Met Thr Asn Gly Arg Phe
245 250 255

Lys Ser Val Lys His Arg Val Leu Ala Asp Thr Thr Lys Ser Arg Leu
260 265 270

Ser Met Ile Tyr Phe Gly Gly Pro Ala Leu Ser Glu Asn Ile Ala Pro
275 280 285

Leu Pro Ser Val Met Leu Lys Gly Glu Glu Cys Leu Tyr Lys Glu Phe
290 295 300

Thr Trp Cys Glu Tyr Lys Lys Ala Ala Tyr Thr Ser Arg Leu Ala Asp
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Asn Arg Leu Ala Pro Phe Gln Lys Ser Ala Ala
325 330

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<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Probe

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tggtttttgtt gaacacacag atccctcaa atcatctgtc ttaagatcta acaacacattc 120
tggctctccaa attaatctaa atgatggctc atggatctct gtccctcccg atcacacattc 180
cttcttccttc aacgtgggtg actctctcca 210

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<211> 199
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Probe

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atcgaggatt tcaatgatat atttcggcgg accgcattt agccagaaga tcgcaccatt 120
gccatgcctt gtccctgagc aagatgattt gctttacaaa gaatttactt ggtctcaata 180
caaatcttctt gcttacaag 199

<210> 5
<211> 1318
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1243, 1265)
<223> unidentified residue

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gttagcaata ccaaaaatccg ggttctctct aatcccgggtt atagatatgt ctgaccacaga 120
atccaaacat gccctcgtga aagcatgcga agacttcggc ttcttcaagg tgatcaacca 180
tggcgtttcc gcagagctag tctctgtttt agaacacgag accgtcgatt tcttctcggt 240
gcccaagtcgagaaaaccc aagtcgcagg ttatcccttc ggatacggga acagtaagat 300
tggtcggaat ggtgacgtgg gttgggttga gtacttggat atgaacgcta atcatgattc 360
cggttcgggtt ccactatttca caagtcttctt caaaagcccg ggaactttca gaaacgcatt 420
ggaagagttac acaacatcgat tgagaaaaat gacattcgat gttttggaga agatcacaga 480
tgggcttaggg atcaaaccga ggaacacact tagcaagctt gtgtctgacc aaaacacgga 540
ctcgatattt agacttaatc actatccacc atgttctctt agcaataaga aaaccaatgg 600
tggtaagaat gtgttgggtt ttggtaaca cacagatccctt caaatcatct ctgtcttaag 660
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tcccgatcac acttcccttct tcttcaacgt tggtgactt ctccagggtga tgacaaatgg 780
gaggttcaag agcgtgaggc atagggtttt agctaactgt aaaaatcta gggtttctat 840
gatttacttc gctggaccc tattgactca gagaatcgctt ccgttgcacat gtttgcata 900
caatgaggac gagagggtt acgaggagtt tacttggctt gaataaaaaa actctaccta 960
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<211> 329
<212> PRT
<213> Arabidopsis thaliana

<400> 6
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Leu Ile Pro Val Ile Asp Met Ser Asp Pro Glu Ser Lys His Ala Leu
20 25 30
Val Lys Ala Cys Glu Asp Phe Gly Phe Phe Lys Val Ile Asn His Gly
35 40 45
Val Ser Ala Glu Leu Val Ser Val Leu Glu His Glu Thr Val Asp Phe
50 55 60
Phe Ser Leu Pro Lys Ser Glu Lys Thr Gln Val Ala Gly Tyr Pro Phe
65 70 75 80
Gly Tyr Gly Asn Ser Lys Ile Gly Arg Asn Gly Asp Val Gly Trp Val
85 90 95
Glu Tyr Leu Leu Met Asn Ala Asn His Asp Ser Gly Ser Gly Pro Leu
100 105 110
Phe Pro Ser Leu Leu Lys Ser Pro Gly Thr Phe Arg Asn Ala Leu Glu
115 120 125
Glu Tyr Thr Thr Ser Val Arg Lys Met Thr Phe Asp Val Leu Glu Lys
130 135 140
Ile Thr Asp Gly Leu Gly Ile Lys Pro Arg Asn Thr Leu Ser Lys Leu
145 150 155 160
Val Ser Asp Gln Asn Thr Asp Ser Ile Leu Arg Leu Asn His Tyr Pro
165 170 175
Pro Cys Pro Leu Ser Asn Lys Lys Thr Asn Gly Gly Lys Asn Val Ile
180 185 190
Gly Phe Gly Glu His Thr Asp Pro Gln Ile Ile Ser Val Leu Arg Ser
195 200 205
Asn Asn Thr Ser Gly Leu Gln Ile Asn Leu Asn Asp Gly Ser Trp Ile
210 215 220
Ser Val Pro Pro Asp His Thr Ser Phe Phe Phe Asn Val Gly Asp Ser
225 230 235 240
Leu Gln Val Met Thr Asn Gly Arg Phe Lys Ser Val Arg His Arg Val
245 250 255
Leu Ala Asn Cys Lys Lys Ser Arg Val Ser Met Ile Tyr Phe Ala Gly
260 265 270
Pro Ser Leu Thr Gln Arg Ile Ala Pro Leu Thr Cys Leu Ile Asp Asn
275 280 285
Glu Asp Glu Arg Leu Tyr Glu Glu Phe Thr Trp Ser Glu Tyr Lys Asn
290 295 300
Ser Thr Tyr Asn Ser Arg Leu Ser Asp Asn Arg Leu Gln Gln Phe Glu
305 310 315 320
Arg Lys Thr Ile Lys Asn Leu Leu Asn
325

<210> 7
<211> 1237
<212> DNA
<213> Arabidopsis thaliana

<400> 7
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ccacagccag tcactttaga taaccacate tccctaattc ccacatacaa accggttccg 180
gttctcactt cccattcaat ccccgtcgta aaccttagccg atccggaagc gaaaacccga 240
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atagagccaa gggacactct gагtaaaatg ctgagagatg agaagagtga ctcgtgcctg 660
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agggtcttag ccgatacaag gagatcgagg atttcaatgata tatatttcgg cggaccggca 960
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<210> 8
<211> 341
<212> PRT
<213> Arabidopsis thaliana

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Ile Pro Thr Tyr Lys Pro Val Pro Val Leu Thr Ser His Ser Ile Pro
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Val Val Asn Leu Ala Asp Pro Glu Ala Lys Thr Arg Ile Val Lys Ala
35 40 45
Cys Glu Glu Phe Gly Phe Phe Lys Val Val Asn His Gly Val Arg Pro
50 55 60
Glu Leu Met Thr Arg Leu Glu Gln Glu Ala Ile Gly Phe Phe Gly Leu
65 70 75 80
Pro Gln Ser Leu Lys Asn Arg Ala Gly Pro Pro Glu Pro Tyr Gly Tyr
85 90 95
Gly Asn Lys Arg Ile Gly Pro Asn Gly Asp Val Gly Trp Ile Glu Tyr
100 105 110
Leu Leu Leu Asn Ala Asn Pro Gln Leu Ser Ser Pro Lys Thr Ser Ala
115 120 125
Val Phe Arg Gln Thr Pro Gln Ile Phe Arg Glu Ser Val Glu Glu Tyr
130 135 140
Met Lys Glu Ile Lys Glu Val Ser Tyr Lys Val Leu Glu Met Val Ala
145 150 155 160
Glu Glu Leu Gly Ile Glu Pro Arg Asp Thr Leu Ser Lys Met Leu Arg
165 170 175

Asp Glu Lys Ser Asp Ser Cys Leu Arg Leu Asn His Tyr Pro Ala Ala
180 185 190

Glu Glu Glu Ala Glu Lys Met Val Lys Val Gly Phe Gly Glu His Thr
195 200 205

Asp Pro Gln Ile Ile Ser Val Leu Arg Ser Asn Asn Thr Ala Gly Leu
210 215 220

Gln Ile Cys Val Lys Asp Gly Ser Trp Val Ala Val Pro Pro Asp His
225 230 235 240

Ser Ser Phe Phe Ile Asn Val Gly Asp Ala Leu Gln Val Met Thr Asn
245 250 255

Gly Arg Phe Lys Ser Val Lys His Arg Val Leu Ala Asp Thr Arg Arg
260 265 270

Ser Arg Ile Ser Met Ile Tyr Phe Gly Gly Pro Pro Leu Ser Gln Lys
275 280 285

Ile Ala Pro Leu Pro Cys Leu Val Pro Glu Gln Asp Asp Trp Leu Tyr
290 295 300

Lys Glu Phe Thr Trp Ser Gln Tyr Lys Ser Ser Ala Tyr Lys Ser Lys
305 310 315 320

Leu Gly Asp Tyr Arg Leu Gly Leu Phe Glu Lys Gln Pro Leu Leu Asn
325 330 335

His Lys Thr Leu Val
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<210> 9
<211> 1008
<212> DNA
<213> Arabidopsis thaliana

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atcgtaagg catgtagaaga gtttgggttc ttcaaagtca tcaaccatgg ggtccgaccc 180
gatctttga ctcagttgga gcaagaagcc atcaacttct ttgcttgca tcactctctc 240
aaagacaag cgggtccacc tgaccgttt ggttacggta ctaaaaggat tggacccaat 300
ggtgacctg gctggcttga gtacattctc ctaatgcta atcttgccct tgagtctcac 360
aaaaccaccc ccattttccg gcacacccct gcaattttca gagaggcagt ggaagagat 420
attaaagaga tgaagagaat gtcgagcaaa ttctggaaa tggtagagga agagctaaag 480
atagagccaa aggagaagct gagccgtttg gtgaaagtga aagaaagtga ttctgcctg 540
agaatgaacc attaccggaa gaaggaaagag actccggta aggaagagat tgggttcgg 600
gagcacactg atccacagtt gatatcaactg ctcagatcaa acgacacaga gggtttgcaa 660
atctgtgtca aagatggaaat atgggttgcgtt gttacacccct atcactctc tttcttcgtt 720
cttgcggag atactcttca ggtgatgaca aacggaagat tcaagagtgt gaaacataga 780
gtggtgacaa atacaaagag gtcaaggata tcgatgatct acttcgcagg tcctcctttg 840
agcgagaaga ttgcaccatt atcatgcctt gtgccaaagc aagatgattt ccttataat 900
gagtttactt ggtctcaata caagttatct gcttacaaaa ctaagcttgg tgactatagg 960
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<211> 335
<212> PRT
<213> Arabidopsis thaliana

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Thr Asp Ser Asp Ala Lys Thr Gln Ile Val Lys Ala Cys Glu Glu Phe
35 40 45

Gly Phe Phe Lys Val Ile Asn His Gly Val Arg Pro Asp Leu Leu Thr
50 55 60

Gln Leu Glu Gln Glu Ala Ile Asn Phe Phe Ala Leu His His Ser Leu
65 70 75 80

Lys Asp Lys Ala Gly Pro Pro Asp Pro Phe Gly Tyr Gly Thr Lys Arg
85 90 95

Ile Gly Pro Asn Gly Asp Leu Gly Trp Leu Glu Tyr Ile Leu Leu Asn
100 105 110

Ala Asn Leu Cys Leu Glu Ser His Lys Thr Thr Ala Ile Phe Arg His
115 120 125

Thr Pro Ala Ile Phe Arg Glu Ala Val Glu Glu Tyr Ile Lys Glu Met
130 135 140

Lys Arg Met Ser Ser Lys Phe Leu Glu Met Val Glu Glu Glu Leu Lys
145 150 155 160

Ile Glu Pro Lys Glu Lys Leu Ser Arg Leu Val Lys Val Lys Glu Ser
165 170 175

Asp Ser Cys Leu Arg Met Asn His Tyr Pro Glu Lys Glu Glu Thr Pro
180 185 190

Val Lys Glu Glu Ile Gly Phe Gly Glu His Thr Asp Pro Gln Leu Ile
195 200 205

Ser Leu Leu Arg Ser Asn Asp Thr Glu Gly Leu Gln Ile Cys Val Lys
210 215 220

Asp Gly Thr Trp Val Asp Val Thr Pro Asp His Ser Ser Phe Phe Val
225 230 235 240

Leu Val Gly Asp Thr Leu Gln Val Met Thr Asn Gly Arg Phe Lys Ser
245 250 255

Val Lys His Arg Val Val Thr Asn Thr Lys Arg Ser Arg Ile Ser Met
260 265 270

Ile Tyr Phe Ala Gly Pro Pro Leu Ser Glu Lys Ile Ala Pro Leu Ser
275 280 285

Cys Leu Val Pro Lys Gln Asp Asp Cys Leu Tyr Asn Glu Phe Thr Trp
290 295 300

Ser Gln Tyr Lys Leu Ser Ala Tyr Lys Thr Lys Leu Gly Asp Tyr Arg
305 310 315 320

Leu Gly Leu Phe Glu Lys Arg Pro Pro Phe Ser Leu Ser Asn Val
325 330 335

<210> 11

<211> 20

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

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<223> Description of Artificial Sequence: Primer		
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<223> Description of Artificial Sequence: Primer		
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